



PALOMAR GATEWAY DISTRICT SPECIFIC PLAN FINAL MOBILITY STUDY

January 13, 2012



Walkable and Livable
Communities Institute, Inc.

LINSCOTT
LAW &
GREENSPAN

engineers

REPORT INFORMATION

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Chula Vista, CA

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PALOMAR GATEWAY DISTRICT SPECIFIC PLAN

MOBILITY STUDY

City of Chula Vista, California
January 13, 2012

1.0 INTRODUCTION

The Palomar Gateway District (PGD) is one of five planning districts contained within the Southwest Area Plan in the City of Chula Vista's General Plan. The PGD is considered the major southern gateway to the City via the Palomar Street/ I-5 interchange and the Palomar Street trolley station. The PGD currently serves a variety of land uses including residential, commercial, retail and industrial.

According to the City of Chula Vista 2005 General Plan, the PGD was identified as a district where more intensive development, revitalization and/or redevelopment is proposed to occur. The General Plan vision for the district includes a mixed-use Transit Focus Area (TFA), high-density residential, commercial retail and a neighborhood park. SANDAG also designated the District as a Smart Growth Community Center. The goal is to revitalize the District through mixed-use density, Smart Growth design, and Transit Oriented Development (TOD) that promotes mobility through active transportation that promotes health living by maximizing current transportation infrastructure. Active Transportation encourages safe, convenient and fun bicycling, walking and public transit to achieve a significant shift from environmentally harmful, sedentary travel to clean active travel.

Based on the goals and vision of the PGD, the following Mobility Study was prepared. The Mobility Study was developed to analyze mobility conditions (motorized and non-motorized) to accommodate expected growth and the City's vision of a vibrant, multi-use PGD. The Mobility Study reviews the current and future transportation system across all modes of travel (i.e. pedestrians, bikes, autos and transit) and user abilities (children, elderly and disabled). The study departs from the traditional traffic impact studies and address mobility with a focus on *moving people*, not cars.

2.0 PROJECT DESCRIPTION

The Palomar Gateway District (PGD) is ideally situated for one of Chula Vista's in-fill Transit Oriented Development (TOD) villages. The PGD is bounded by Walnut Avenue/ Frontage Road to the west, Oxford Street to the north, Trolley Center to the east and Anita Street to the south.

The project site is ideally located for Smart Growth development with regional and local access provided by I-5 and Palomar Street respectively with the Palomar Street Transit Center served by the Trolley Blue Line. The Blue Line is the most heavily traveled corridor in San Diego with more than 10,000 average daily boardings. Per the SANDAG "State of Commute 2010 Report", the highest ranking transit route by ridership in the San Diego County is the Blue Line Trolley, which totaled 20 million passengers in Year 2009. By comparison, all other light rail service (Orange Line, Green Line trolley services and Sprinter) combined totaled 18 million passengers or 91.5% of the Blue Line passenger count. The Orange and Green Line trolley services each carried approximately 8 million passengers (Year 2009 data) and ranked 2nd and 3rd in transit ridership in San Diego County.

General Plan Vision

According to the City of Chula Vista 2005 General Plan, the PGD was identified as a district where more intensive development, revitalization and/or redevelopment is proposed to occur. There are four General Plan land use designations within the Palomar Gateway District. The General Plan describes these land use designations as follows:

- *High Residential:* The High Residential designation is intended for multi-family units, such as apartment and condominium-type dwellings in multiple-story buildings, with densities ranging from 18 to 27 dwelling units per gross acre. At an average of 2.5 persons per unit, population density in this designation would range from 45 to 67 persons per acre.
- *Mixed Use Transit Focus Area:* The Mixed Use Transit Focus Area designation is intended within approximately ¼ mile of the existing Palomar Trolley Station, and is intended for the highest intensity mixed use residential environment. This designation allows a mix of residential, office, and retail uses in an area that is pedestrian-friendly and has a strong linkage to provision of mass transit. District-wide gross residential density within this designation is an average of 40 dwelling units per acre.
- *Retail Commercial:* The Retail Commercial designation (a small area located along Industrial Boulevard at Anita Street) is intended to allow a range of neighborhood and community retail shopping and services. This category may include limited thoroughfare retail and automobile-oriented services.
- *Parks and Recreation:* The Parks and Recreation designation is intended for parks; sports fields; playgrounds; golf courses; and other passive and active recreation uses. The designation may also include community centers and urban parks.

Based on coordination with City staff and pursuant to recent City council direction, a portion of the office land use in the Transit Focus Area may be developed with a College/ Institution use. This use has been suggested on the 4.8 acre property at the southwest corner of Palomar Street/ Industrial Boulevard intersection; however, no detailed plans or project has been proposed.

The PGD is divided into four (4) sub-districts:

- MU-1: Palomar Transit Plaza / Transit Focus Area
- MU-2: Mixed-use corridor
- PRV: Palomar Residential Village/ Residential High
- PRNC: Palomar Residential Retail Cluster / Commercial Retail

In addition to these sub-districts, a neighborhood park within the Specific Plan Area is also envisioned whose location is not yet finalized. Initial discussions on a planning level are focused on the SDGE parcel, south of the existing Palomar transit station.

Market Absorption

The land use intensities in the City of Chula Vista General Plan have been reduced based on findings from the Year 2011 market absorption study. No changes to the land use types were proposed. The updated land use quantities are shown in **Table 1**.

TABLE 1
PALOMAR GATEWAY EXISTING AND PROJECTED LAND USES

| Land Uses | Existing Development | Projected Additional Development | Total Estimated Buildout | Projected Buildout by sub-district | | | |
|------------------|----------------------|----------------------------------|--------------------------|------------------------------------|-------------------|------------------|------------------|
| | | | | MU-1 (3.5 ac) | MU-2 (31.5 ac) | PRV (43.5 ac) | PNRC (1.5 ac) |
| Residential (DU) | 400 | 1,300 | 1,700 | 150 | 450 | 700 | — |
| Retail (SF) | 200,000 | 100,000 | 300,000 | 10,000 | 85,000 | — | 5,000 |
| Office (SF) | — | 50,000 | 50,000 | 5,000 | 40,000 | — | 5,000 |
| Industrial (SF) | 30,000 | — | — | — | — | — | — |

Footnotes:

- a. Land use quantities and densities provided by City of Chula Vista.

Figure 1 shows the project location map and **Figure 2** shows the project land use map. **Appendix A** contains the City of Chula Vista General Plan Vision and market absorption study for PGD.

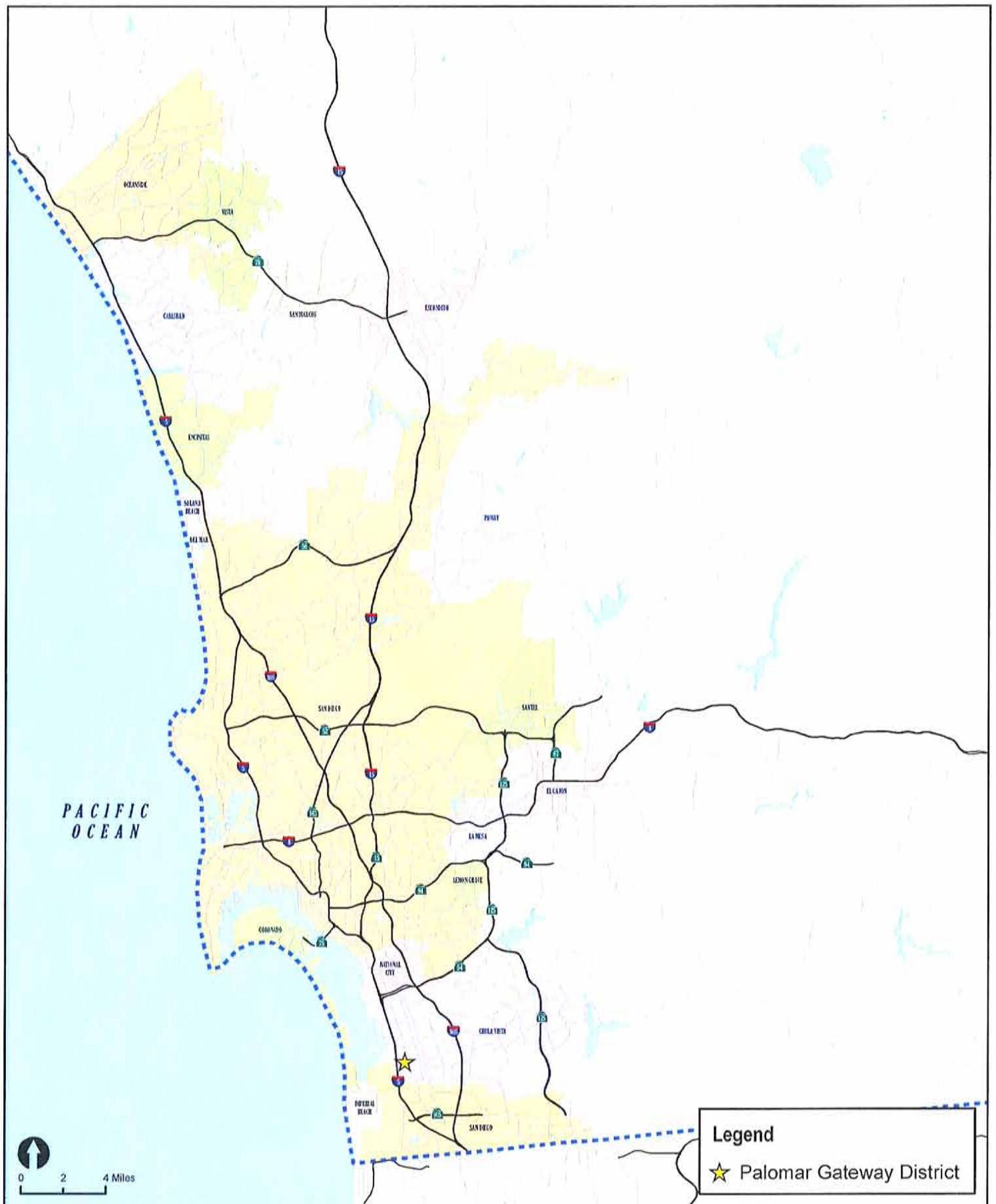


Figure 1
Project Location Map

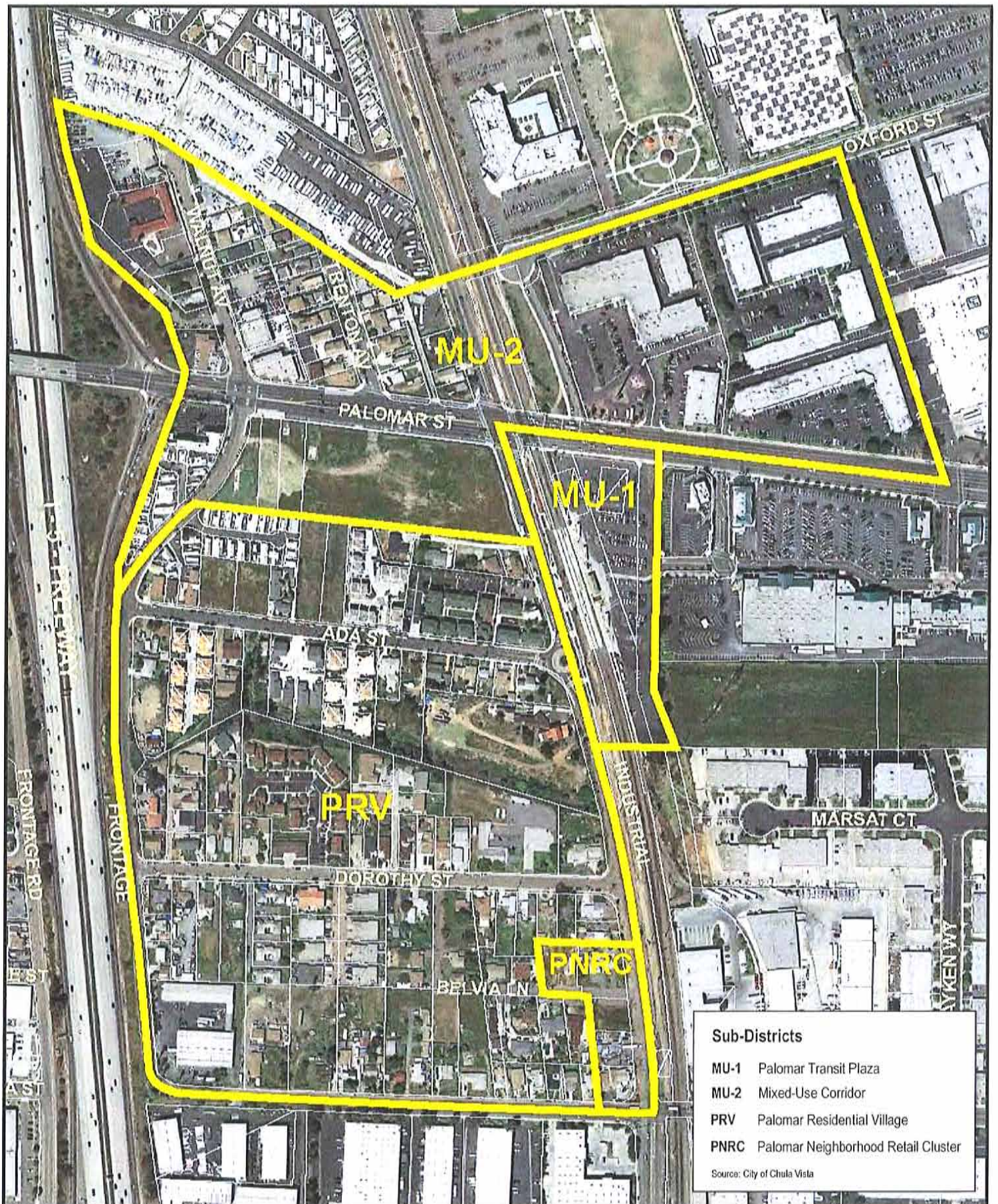


Figure 2
Project Land Use Map

3.0 STUDY OBJECTIVES AND GUIDING PRINCIPLES

Study Objectives

The Mobility study's objective is to analyze existing and future mobility conditions in PGD and provide recommendations to *revitalize the District through mixed-use density, Smart Growth design, and Transit Oriented Development (TOD)*.

The intent of the study is to present a Mobility Plan containing strategies, regulations and design parameters, to be implemented as individual projects are constructed in the District. Over time, the District will be transformed from its underutilized/lower-density setting into a vibrant and cohesive higher-density, multi-modal transit-oriented community.

Guiding Principles

The review of mobility across all modes of transportation can be challenging due to existing constraints, competing interests of travel modes, and the complexity of planning for a 80-acre site. To achieve the above objectives, the following key principles were developed:

Principle A: Balance all modes of transportation giving equal importance to motorized (autos) travel and non-motorized travel (pedestrians, bicycles and transit). Promote Complete Streets concepts in accordance with the Assembly Bill (AB) 1358.

The “*California Complete Streets Act of 2008*” (AB 1358) was passed into law on September 30, 2008. Commencing January 1, 2011, the bill requires, “*that the legislative body of a city or county, upon any substantive revision of the circulation element of the general plan, modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways, defined to include motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation, in a manner that is suitable to the rural, suburban, or urban context of the general plan. By requiring new duties of local officials, this bill would impose a state-mandated local program*”.

Implementing Complete Streets also supports California Global Warming Solutions Act of 2006 (AB 32) and Senate Bill 375.

Principle B: Explore efficient, flexible, creative and context sensitive solutions.

Principle C: Ensure safety for all users without compromise.

Principle D: Recognize that the best overall mobility solution may decrease operations for a particular mode of travel.

Principle E: Prioritize transportation recommendations for both motorized and non-motorized travel based on a tiered system.

4.0 NON-MOTORIZED TRAVEL CONDITIONS

The following section details the existing conditions and the challenges faced by pedestrian, bicycle and transit users.

Pedestrian Facilities

Existing Conditions

The following discussion provides a description of the existing pedestrian conditions in the project area at street segments and intersections. The key features identified at the street segment level include the provision of contiguous sidewalks and their connectivity to adjacent intersections. At the intersections level, the provision of adequate ADA accessible curb ramps and crosswalks were noted.

Palomar Street between Bay Boulevard and I-5 includes a sidewalk only on the north side. The I-5 overcrossing on Palomar Street includes a sidewalk only on the south side. With only one sidewalk on the bridge, there is limited pedestrian interaction between the east side and west side of I-5. The Palomar Street interchange ranks high among the improvements needed for I-5 interchanges in Chula Vista based on traffic volumes and levels of service. Caltrans, SANDAG and the City of Chula Vista are currently working on the *I-5 South Multimodal Corridor Study*, which identifies an overcrossing with additional lanes and proposed 6-foot sidewalks on both sides to enhance pedestrian activity and interaction.



Palomar Street between I-5 and Transit Center Place includes 6-foot sidewalks on both sides of the roadway. Even though sidewalks are provided, the lack of crosswalks forces pedestrians to cross at uncontrolled locations such as driveways and on travel lanes, or in the middle of parking lots, compromising safety. For instance: the driveway leading into the Transit Center Parking lot is 60 feet wide. Pedestrians heading toward the transit station face high-volume high-speed right-turning traffic. Older pedestrians, children and other people that lack



speed and detection skills are exposed further.



Industrial Boulevard, north of Palomar Street, currently does not include a sidewalk on the east side fronting the railroad tracks. This is particularly concerning, given the proximity of the Harborside Elementary School.

There are planned improvements in Fiscal Year 2012 to provide curb, gutter, sidewalk and bike lane improvements on Industrial Boulevard between Moss Street and Palomar Street. Over the past several years,

City staff has submitted grant applications to complete improvements on the east side from L Street to Moss Street but these applications have been unsuccessful.

Industrial Boulevard, south of Palomar Street to Ada Street provides good pedestrian circulation with standards width sidewalks on both sides of the street given the proximity of the transit center. The sidewalks also include staircase and curb ramps to/from the transit center platform providing convenient access for all user types. Industrial Boulevard between Ada Street and Anita Street does not include sidewalks on both sides of the street. Industrial Boulevard, south of Anita Street, includes a sidewalk only on the west side that provides access to the businesses.



Ada Street and Dorothy Street are east-west roadways connecting Industrial Boulevard and Frontage Road. The adjacent land uses on Ada Street and Dorothy Street are residential. Ada Street and Dorothy Street includes sidewalks on both sides of the roadway providing good mobility and a safe dedicated walking space for residents.

Anita Street also connects Industrial Boulevard and Frontage Road but includes a sidewalk only on the south side, which serves the businesses. The north side fronting residential uses does not include a sidewalk.

Frontage Road is 2-lane undivided north-south roadway connecting Palomar Street to Anita Street. Frontage Road does not include sidewalks on the west side and for majority on the east side. The only sidewalks available on the east side are north of Ada Street for approximately 350 feet.

Walnut Avenue is 2-lane undivided north-south north of Palomar Street that terminates into a cul-de-sac. Walnut Avenue provides sidewalks on both sides of the roadway that serve the residential uses on the east side and commercial retail establishments on the west side.

Trenton Avenue is 2-lane undivided north-south north of Palomar Street that terminates into a cul-de-sac. Trenton Avenue provides sidewalks on both sides of the roadway serving the residential uses.

The following are the existing pedestrian conditions at the study area intersections:

The Palomar Street/I-5 Southbound Ramps intersection includes adequate ADA accessible curb ramps and crosswalks to help facilitate pedestrian crossings. However, with regards to connectivity to the street segments, the eastbound approach of the intersection currently does not include a sidewalk. Even though pedestrian connectivity is adequate at the intersection level, it must be ensured that the sidewalks on the street segments leading to/from intersections are also provided to prevent pedestrians from jaywalking at mid-block locations. The Palomar Gas station project is proposing street improvements on Palomar Street, west of I-5 at the southwest quadrant.



The Palomar Street/I-5 Northbound Ramps intersection affords good pedestrian features such as ADA accessible curb ramps and crosswalks. Based on field observations, it was noted that the westbound right-turn is currently a “free” movement with a pedestrian crossing. Pedestrian crossings at free movements generally are not favorable given the high speeds and longer crossing distances. The I-5 South Multi-Modal Corridor Study addresses this deficiency by squaring-up the intersection.



The Palomar Street/Industrial Boulevard intersection was recently upgraded to include landscape medians, enhanced crosswalk paving, sidewalks, chain-link fence to discourage jaywalking, and tree-lined parkways as a part of the SANDAG Palomar Gateway Enhancement project Smart Growth Incentive Program (SGIP). This intersection along with the Palomar Transit Center serves as the primary influence area for the PGD and it is important to provide inviting, well-planned, pedestrian-friendly street environments to promote a vibrant pedestrian-



oriented community that encourages people to walk.

The Palomar Street/Transit Center Place intersection also serves as one of the pedestrian generators given the neighboring commercial/retail opportunities and its interaction with the transit center. This intersection affords curb ramps at all the corners of the intersection. However, the curb ramp at the northeast corner is “skewed” and does not provide direct convenient access with the curb ramp at the southeast corner. Additionally, the curb ramp at the northwest corner has degraded and the push-button is placed on grass making it inconvenient for ADA users. The intersection includes a marked crosswalk only on the southside with no crosswalk markings on the other legs.



The Industrial Boulevard/Ada Street intersection was recently upgraded to include a roundabout as a part of SANDAG Palomar Gateway Enhancement project Smart Growth Incentive Program (SGIP). This intersection affords desirable pedestrian features such as crosswalks (splitter islands) and flashing crosswalk markers to help driver visibility at night, etc. However, the intersection is poorly connected to the street segment south of Ada Street, which includes no sidewalks.



The Industrial Boulevard/Anita Street intersection forms the southern boundary of the PGD. This intersection currently does not include sidewalks on Industrial Boulevard. There is poor pedestrian connectivity across the rail road tracks from Industrial Boulevard to Anita Street. Based on our field observations, it was noted that there were truck turning issues from Industrial Boulevard to Anita Street. MTS plans to upgrade the Anita Street rail crossing to improve roadway and pedestrian connections in FY 2012/2013.

Planned Improvements – City of Chula Vista Pedestrian Master Plan

LLG reviewed the City of Chula Vista Pedestrian Master Plan, which provides an inventory of existing missing sidewalks and curb ramps on segments and intersections respectively. The Master Plan also includes a “Needs Assessment” and based on findings from this assessment, the document provides High Priority Project Areas within the City of Chula Vista. The Master Plan identifies the following facilities within the Palomar Gateway District as High Priority locations:

- Rank #3: Palomar Street between Bay Boulevard to Orange Avenue
- Rank #4: Industrial Boulevard between L Street and Anita Street.

In addition to the recommendations outlined in the Pedestrian Master Plan, MTS plans to upgrade the Anita Street rail crossing to improve roadway and pedestrian connections in FY 2012/2013.

Figure 3 shows the existing pedestrian network and improvements proposed by the Pedestrian Master Plan. *Appendix B* contains the City of Chula Vista Pedestrian Master Plan excerpts.

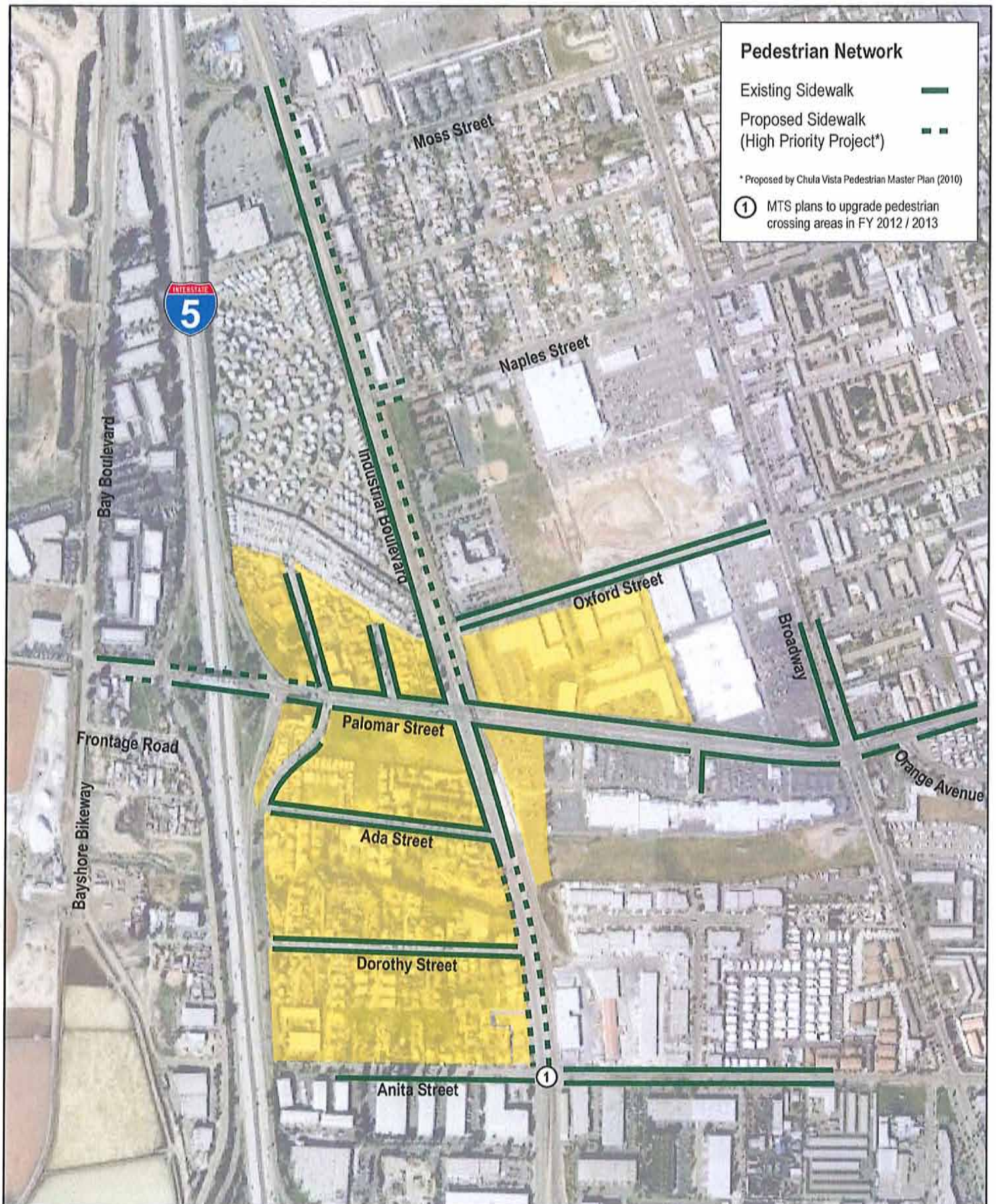


Figure 3
Existing Pedestrian Facilities and Proposed Master Plan

Bicycle Facilities

Existing Conditions

The following section provides an existing conditions assessment of bicycle facilities within the Palomar Gateway District.

Palomar Street currently affords a Class II bike lane between Walnut Avenue and Industrial Boulevard. A Class III bike route is provided between Industrial Boulevard and Broadway. Dedicated bike lanes are provided at the Palomar Street/ Industrial Boulevard intersection.

Industrial Boulevard currently affords a Class III bike route in the project area. A Class II bike lane is provided between Palomar Street and Ada Street. The Class II bike lane terminates, south of Ada Street and turns into a Class III bike route.



Planned Improvements – City of Chula Vista Bicycle Master Plan

The *City of Chula Vista Bicycle Master Plan* provides a description of existing bicycle facilities as well as future planned facilities. The City of Chula Vista Bicycle Master Plan identifies the following facilities within the Palomar Gateway District:

- Palomar Street – Walnut Avenue to Industrial Boulevard: Maintain the existing Class II bike lanes.
- Palomar Street – Industrial Boulevard to Orange Avenue: Maintain the existing Class III bike route.
- Naples Street – Industrial Boulevard to Broadway: Include a Class III bike route.
- Oxford Street – Industrial Boulevard to Broadway: Include a Class III bike route.
- Industrial Boulevard – L Street to Anita Street: Upgrade from the existing Class III bike route to Class II bike lanes.

Figure 4 shows the existing bikeway network and the improvements proposed by the Bicycle Master Plan. **Appendix C** contains the City of Chula Vista Bicycle Master Plan excerpts.

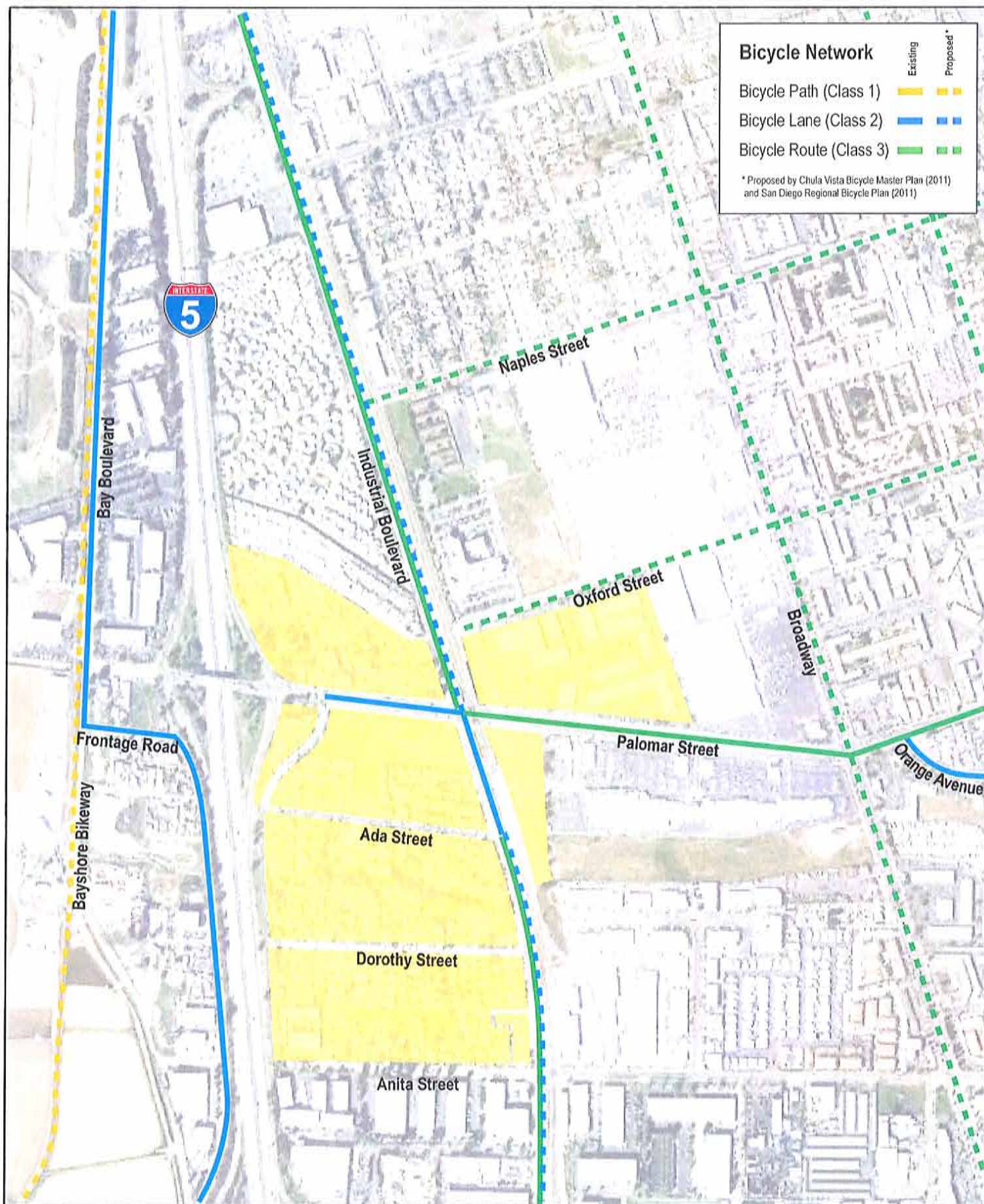


Figure 4
Existing Bicycle Facilities and Proposed Master Plan

Pedestrian and Bicycle Collisions

LLG also researched and identified the pedestrian and bicycle collisions in the project study area between Year 2002 and 2007 from the California Highway Patrol – Statewide Integrated Traffic Records System (2011). Based on our review, there were multiple pedestrian collisions at the Palomar Street/ Industrial Boulevard intersection. This is considered a high risk location given the at-grade trolley crossing conflicts associated with pedestrians and bicyclists.

Figure 5 presents the pedestrian and bicycle collision data.

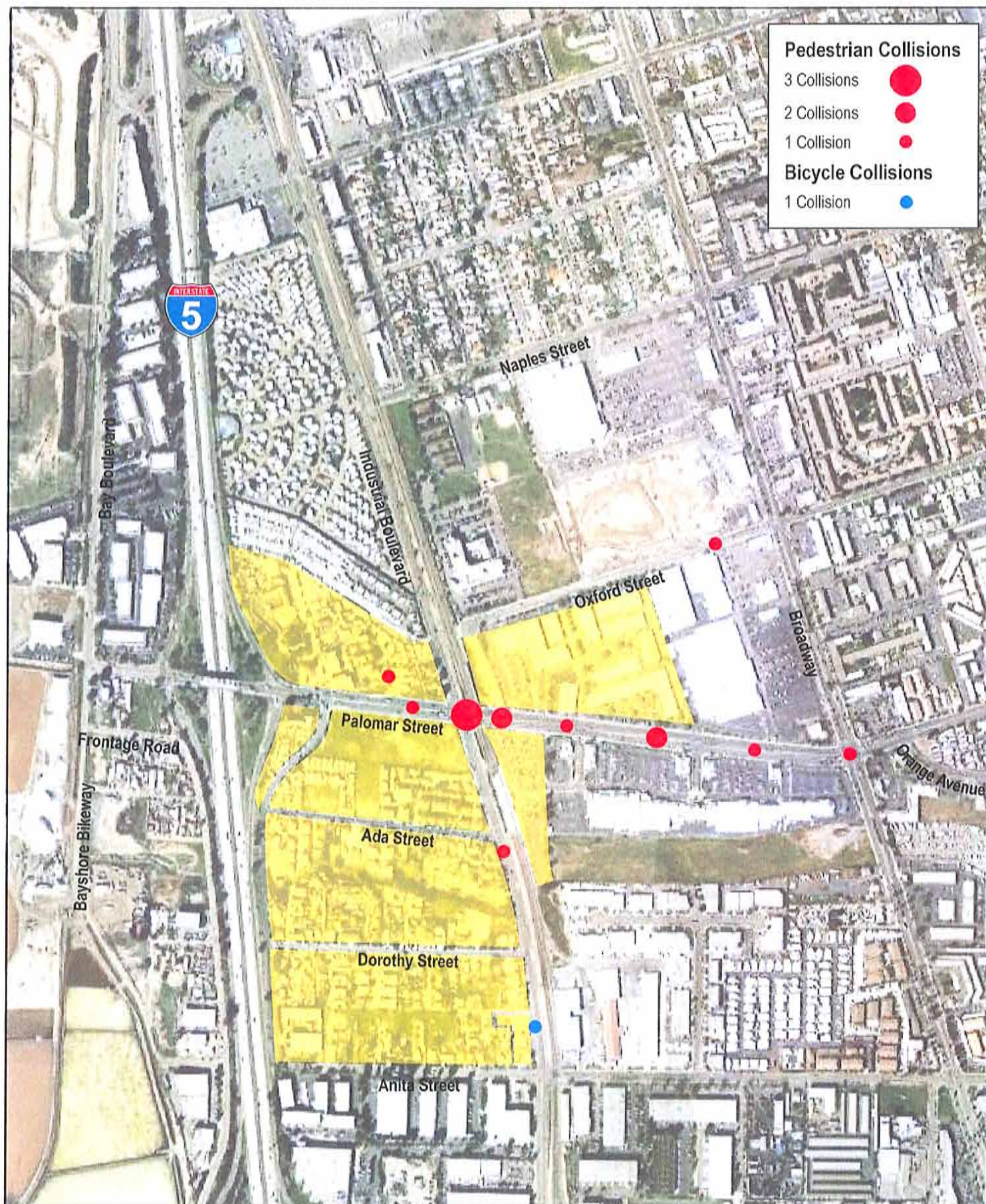


Figure 5
Pedestrian and Bicycle Collisions (2002 - 2007)

Transit Facilities

Existing Conditions

The Palomar Transit Center, located at the southeast quadrant of the Palomar Street / Industrial Boulevard intersection, provides both regional and local transit facilities through the San Diego Trolley Blue Line and MTS bus services, respectively.

Buses – Local transit service is provided by the Metropolitan Transit System (MTS) bus service. The routes serving the transit center and the Palomar Gateway District include 701, 704, and 712. These transit routes provide service to/from Southwestern College and the trolley station on E Street and H Street.

Trolley Blue Line – Regional transit service to the PGD is provided by the Trolley Blue Line, which connects the District to Downtown San Diego / Old Town to the north and to San Ysidro / Mexican border to the south. The Blue line is considered the most heavily traveled corridor with more than 10,000 average daily boarding's and alightings. The weekday headways are approximately between 7 and 15 minutes and the weekend headways are around 15 minutes.

Planned Improvements

Buses – The City of Chula Vista is currently working on a Federal ARRA Grant titled “Seniors, Sidewalks and the Centennial”. This grant focuses on the needs of the senior community in western Chula Vista. The final report will be completed in January 2012 and includes discussion on encouraging shade structures (sun sensitivity) for bus stops that are in close proximity to senior centers and shopping centers.

Trolley Blue Line – SANDAG and MTS are currently working on a project that upgrades the Trolley Blue Line. The project proposes to introduce new sleek low-floor trolley cars to the region. The project proposes to raise 33 station platforms to accommodate the easy access vehicles. The project aims at increasing system efficiency and reliability which include level ramp boarding, eliminating the need for mechanical lifts for people using mobility devices making operations much faster.

Additionally, in conversations with MTS, City staff have indicated an additional LRT car from the current 3-car to 4-car LRT for the Blue Line service. The planning for this improvement is in the preliminary stages as the trolley blocks in Downtown San Diego are currently tight and unable to accommodate an additional LRT car. Hence to accommodate the demand, headway reductions in the day are being considered as a short- term solution.

In the long-term, the 2050 Regional Transportation Plan includes the *I-5 South Multi-Modal Corridor Study*, which analyzes a variety of conceptual alternatives for multimodal improvements along I-5 between State Route (SR) 54 and Main Street within the City of Chula Vista. The study focuses on multi-modal improvements such as transit, freight rail, bicycle, and pedestrian modes between SR-54 and Main Street.

As a part of I-5 South Multi-Modal Corridor study, the increasing demand for the Blue Line and associated conflicts of at-grade trolley crossings with vehicular traffic in this corridor was reviewed, including Palomar Street. As the frequency of the trolley increases with demand, the level of service at the Palomar Street at-grade rail crossing decreases due to the increased crossing arm down time. The at-grade rail crossings also create potential safety risks to rail workers during maintenance activities, and to the general public.

The I-5 South Multi-Modal Corridor study conducted a detailed assessment of four rail alignment alternatives which include grade separated structures at E Street, H Street and Palomar Street. Grade separated structures were considered as SANDAG has ranked Palomar Street, E and H as priority locations for grade separated crossings. Palomar Street trolley crossing ranks (#4) in this list.

The proposed grade separations at E Street, H Street, and Palomar Street are also included on the regional priority list for rail grade separation projects in SANDAG's 2050 Regional Transportation Plan (2050 RTP) in the Revenue Constrained Plan to be completed by Year 2020. Eliminating the at-grade rail crossings would be a practical alternative for improving traffic and transit operations.

SANDAG in preliminary studies, has identified that Express Trolley operations could be a potential benefit to ridership in this corridor. In addition to passenger operations, freight operations also use this corridor to interchange cargo with Mexico and serve local industries along the alignment. The I-5 South Multi-Modal Corridor study evaluated alignment alternatives for adding a third mainline track for Express Trolley operations, as well as maintaining or increasing currently planned and future freight operations.

The four rail alignment alternatives that were considered are:

1. *Alignment 4a:* Express Trolley Track between existing tracks, localized at stations with three grade-separated crossings
2. *Alignment 4b:* Express Trolley Track as center track throughout the project limits with three grade-separated crossings
3. *Alignment 4c:* Freight and Express Trolley located east of two western tracks with three grade-separated crossings.
4. *Grade Separations Only:* Maintain existing alignment with three grade-separated crossings

This Relates to Agenda Item 440
Joint TWG/STAC
September 2, 2010

DRAFT RAIL GRADE CROSSING EVALUATION SUMMARY
Points based on Rail Grade Separation Evaluation Criteria
Approved by the SANDAG Transportation Committee on October 16, 2009

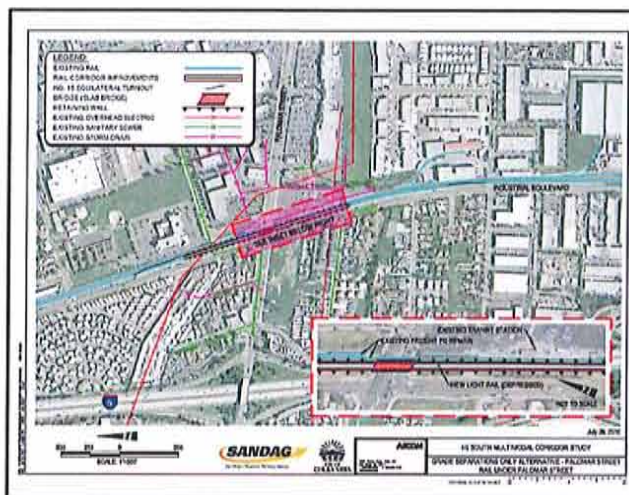
| At Grade Crossing Location | Rank | Veh. per Day ADT | Trains per Day | Accidents | Total Points | Estimated Cost to Grade Separate (2010) (\$'000) | Assumptions |
|---|------|------------------|----------------|-----------|--------------|--|----------------------------|
| Washington, Laurel, Hawthorn, Grays, Ash, and Broadway Streets, San Diego | 1 | 263,345 | 137 | 8 | 55.8 | \$2,200 | Heavy & light rail tracks* |
| Taylor Street, San Diego | 2 | 42,610 | 193 | 4 | 62.8 | \$70 | street underpass† |
| Broadway/Lemon Drive Avenue, Lemon Drive | 3 | 40,401 | 144 | 2 | 57.9 | \$43 | light rail overpass |
| Palomar Street, Chula Vista | 4 | 35,337 | 208 | 0 | 55.5 | \$45 | light rail overpass |
| H Street, Chula Vista | 5 | 47,094 | 209 | 0 | 53.3 | \$45 | light rail overpass |
| E Street, Chula Vista | 6 | 45,658 | 208 | 1 | 52.3 | \$45 | light rail overpass |
| Euclid Avenue, San Diego | 7 | 31,660 | 144 | 0 | 48.3 | \$43 | light rail overpass |
| Washington Street, San Diego (light rail only) | 8 | 30,315 | 206 | 0 | 45.3 | \$43 | light rail overpass |
| Village Village Drive/John Street, Vista | 9 | 61,498 | 67 | 0 | 43.0 | \$60 | light rail overpass** |
| Civic Center Drive, Vista | 10 | 45,782 | 67 | 0 | 42.0 | \$60 | light rail overpass |
| 10th Street, San Diego | 11 | 37,223 | 206 | 0 | 44.5 | \$60 | light rail overpass |
| Ash Street, San Diego (light rail only) | 12 | 30,375 | 206 | 0 | 44.0 | \$100 | light rail underpass |
| Broadway, San Diego (light rail only) | 13 | 27,845 | 144 | 0 | 41.3 | \$110 | light rail overpass |
| 15th Street, San Diego | 14 | 32,470 | 200 | 0 | 47.5 | \$60 | light rail overpass |
| Allison Ave/University Avenue/Mesa Blvd, La Mesa | 15 | 24,760 | 144 | 0 | 40.3 | \$100 | light rail overpass |
| Sierra Drive, La Mesa | 16 | 13,911 | 208 | 2 | 40.3 | \$60 | light rail overpass |
| Sierra Valley Blvd, San Diego | 17 | 37,090 | 61 | 1 | 37.5 | \$130 | heavy rail overpass |
| Marina Drive, Vista | 18 | 25,921 | 67 | 0 | 31.8 | \$43 | light rail overpass** |
| El Camino Real, Guatamala | 19 | 38,911 | 67 | 0 | 31.7 | \$43 | light rail overpass** |
| North Drive, Vista | 20 | 8,793 | 67 | 0 | 24.5 | \$30 | light rail overpass |
| Mar Vista Drive, Vista | 21 | 9,665 | 67 | 0 | 24.8 | \$30 | light rail overpass |
| Los Angeles Drive, Vista | 22 | 4,281 | 67 | 0 | 24.8 | \$30 | light rail overpass |
| Grand Avenue/Castillo Village Drive, Carlsbad | 23 | 21,115 | 91 | 0 | 24.3 | \$110 | heavy rail overpass |
| Guajome Street, Vista | 24 | 4,152 | 67 | 0 | 18.0 | \$30 | light rail overpass |
| Tamarack Avenue, Carlsbad | 25 | 16,363 | 51 | 0 | 23.8 | \$90 | heavy rail overpass |
| Cannon Road, Carlsbad | 26 | 12,434 | 51 | 0 | 22.3 | \$90 | heavy rail overpass |
| Laurelita Blvd, Encinitas | 27 | 24,200 | 81 | 1 | 22.0 | \$90 | heavy rail overpass |
| Total | | | | | | \$3,700 | |

* Shared tracks indicate that the cost to grade separate is also included in the total cost of other projects in the RTP
† Included in the Quarter double track project
** Included in the Sprint double track project

The I-5 South Multi-Modal Corridor study recommends Alignment 4c for further study, which consists of the installation of a new third track for Express Trolley operations to the east of the existing trolley tracks and grade separation. The new track would allow Express Trolley and freight to operate on the easternmost track throughout the project limits from SR 54 to Main Street. The Express Trolley would travel non-stop through the E Street and Palomar Street transit stations along the easternmost track.

In addition to the rail alignment alternatives, three Palomar Street grade separation alternatives were considered:

1. *Palomar Street Over Rail* – Palomar Street would rise above grade on the east and west sides of the rail to cross over the rail corridor (Road Overcrossing).
2. *Rail Under Palomar Street* – The rail would drop below grade on the north and south sides of Palomar Street to cross under Palomar Street (Rail Undercrossing).
3. *Rail Over Palomar Street* – The rail would rise above grade on the north and south sides of Palomar Street to cross over Palomar Street (Rail Overcrossing).



The I-5 South Multi-Modal Study does not recommend a preferred grade separation alternative for Palomar Street at this time. In FY 2012, City staff in conjunction with SANDAG and consultant team will study each location in detail and provide a preliminary recommendation for each alternative.

Figure 6 shows the existing transit network and planned improvements. **Appendix D** contains the excerpts from the 2050 RTP and I-5 South Multi-Modal Corridor Study.

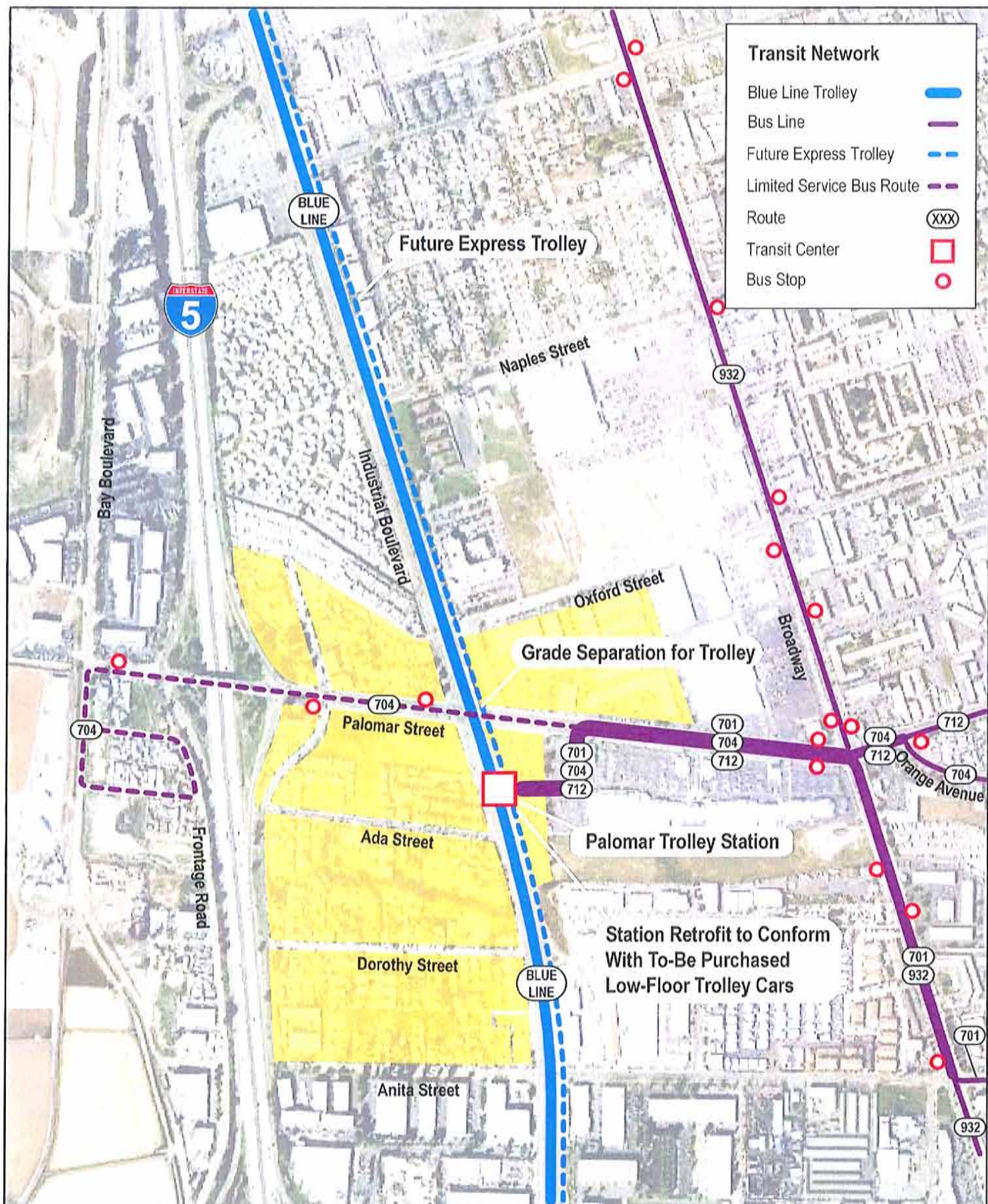


Figure 6
Existing Transit Network and Planned Improvements